

ON SOME FISHES OF WESTERN CUBA.

BY N. E. McINDOO.

During the latter part of June and the first part of July, Mr. J. D. Haseman and the writer, under the auspices of the Zoological Department of Indiana University, visited twenty-one caves between Alacranes and Cañas, Cuba, in order to secure embryos of the blind fishes—*Stygicola* and *Lucifuga*.

We also collected fishes in the fresh waters and in the ocean at Marianao and at Batabano. These are enumerated in the present paper. The expenses were in part provided by a grant from the Carnegie Institution.

After collecting blind fishes we made our headquarters at the Estacion Central Agronomica de Cuba, located at Santiago de las Vegas. I wish to express our appreciation for the numerous favors which the Director, Prof. E. S. Earle, of the Station, showed us.

LOCALITIES VISITED.

Lagunas Castellanos. Two and one-half miles southwest of Santiago de las Vegas there are three small lagoons situated in a narrow valley. These lagoons are called the "Lagunas Castellanos." Laguna Castellano No. 1 covers about five acres, has steep banks; its bottom is a mixture of mud and gravel, and its water is comparatively clear.

Laguno Castellano No. 2 lies about three hundred yards north of No. 1. It is not as large as No. 1. Its banks are very sloping and covered with aquatic plants which extend into the water one-third the distance to the center. The bottom is deep, black mud. The water is very muddy.

We did not visit Laguna Castellano No. 3, which is somewhat larger than either of the other two and lies a half mile due west of them.

All the fishes we caught in the clear water of Laguna Castellano No. 1 are dark in color; those that came from the muddy Castellano No. 2 are light in color.

Rio Almendares. We seined in the Almendares river at Calabazar for a half mile below the wagon bridge. Under the bridge the water is deep and swift, but thirty feet below the stream widens and the water is shallow. Here the bottom is covered with gravel and large

rocks. It was scarcely possible to seine with success in the river below this point on account of the swift water and steep banks.

Batabano lies on the southern shore of Cuba, nearly due south of Havana. The country about Batabano is very low, a semi-swamp. The entire region between Havana and Batabano, with the exception of a few miles drained by the Almendares river, is drained by underground streams. One of these finds its exit at the Vento Springs, near Havana, and supplies Havana with its water. Two others find their exit near Batabano, one of which arises some distance inland from Batabano and sends a stream six to ten feet wide and about two feet deep through the central part of Batabano.

The other stream arises about three hundred yards from the ocean and flows through the western part of the town. The water is clear and sluggish. Both of these streams run due south and empty into the ocean one-fourth of a mile apart. We seined in the larger stream just north of town, where the water was rather sluggish and the bottom muddy. We used the dip net in town, because it was impossible to handle the seine among the stakes along the banks.

While at Batabano we seined in the ocean along the western side of the wharf, and at the mouth of the small stream in the western part of town. The water is very shallow and the bottoms muddy. Our success was very poor.

Marianao is a small town eight miles west of Havana. On account of the rough rocks which form tide pools, it was impossible to use the seine at Marianao, but three-fourths of a mile northwest the water is shallow and the rocks are covered with sand. Here we had success with the seine. Between this place and Marianao we caught several fishes in the tide pools with our hands or with dip net. The following species were collected in these various localities.

FRESH-WATER FISHES.

PECILIIDÆ.

The members of this family are everywhere abundant.

Cyprinodon riverendi (Poey).

Six small specimens from the stream just north of Batabano.

Fundulus cubensis Eigenmann.

Four small specimens from the stream just north of Batabano. This species seems to be rather rare. It has so far been recorded from Pinar del Rio only.

Gambusia punctata Poey.

Everywhere abundant. Both males and females were caught in the

Almendares river at Calabazar, at the mouth of a small stream emptying into the ocean at Marianao and Laguna Castellano No. 2. The specimens from this lagoon are very light colored and have a more elongate body than the other specimens.

Gambusia puncticulata Pocy.

Very abundant. Our specimens were caught at Calabazar and in Laguna Castellano No. 1. Those from the latter place were collected by Prof. Baker, of the Estacion Central Agronomica de Cuba.

Pœcilia vittata Guichenot.

Found everywhere. Our specimens from Lagunas Castellanos Nos. 1 and 2, from Calabazar and from the stream north of Batabano. All the specimens from Laguna Castellano No. 1 are dark colored; both males and females were caught in Laguna Castellano No. 2 and every one is light in color. All the females contain eggs. Those caught at Calabazar and at Batabano are dark colored, which is due to the clear water.

CICHLIDÆ.

The individuals of the genus *Heros* are quite common everywhere. They are as abundant in the streams of western Cuba as are the sun fishes in Indiana. They vary greatly in coloration.

Heros tetraacanthus (Cuvier & Valenciennes).

Many specimens caught in the Lagunas Castellanos. Those from Laguno Castellano No. 1 are very dark colored; some of them are dark brown and approach a black, while others are much lighter in color. Most of the scales with a dark brown spot at base, these spots forming faint longitudinal series; head, preoperculum and operculum darker than other parts of body; preoperculum with three almost black lengthwise streaks; dorsal, anal, and caudal with dark spots.

The following is the color description of a specimen from Laguna Castellano No. 2. Background flesh color, black dots forming indistinct and discontinuous longitudinal streaks; snout ashy without dark spots; preoperculum and operculum with four discontinuous lengthwise streaks; ventrals and anal ashy; pectorals flesh color; caudal without basal spot; caudal and dorsal with dark spots.

Heros tetraacanthus cinctus Eigenmann.

From Laguna Castellano No. 2 and the stream north of Batabano. Those from Laguna Castellano No. 2, as all other specimens from the same place, are light in color. Each one is barred conspicuously. The specimens collected at Batabano are much darker.

GOBIIDÆ.

Dormitator maculatus (Bloch).

Several specimens from Laguna Castellano No. 1. Comparatively light in color.

MARINE FISHES.

ESOCIDÆ.

Tylosurus euryops Bean & Dresel.

Several from the mouth of the stream in the western part of Batabano. They are very swift and difficult to catch.

ATHERINIDÆ.

Atherina laticeps Poey.

Several specimens from Marianao.

MUGILIDÆ.

Mugil trichodon Poey.

Several were caught at Batabano, west of the wharf.

MULLIDÆ.

Upeneus maculatus (Bloch).

One specimen from Marianao.

CARANGIDÆ.

Caranx ruber (Bloch).

Several from Marianao.

Trachinotus falcatus (Linnaeus.)

One specimen from Marianao.

LUTIANIDÆ.

Neomænis apodus (Walbaum).

One small specimen from Marianao.

Neomænis synagris (Linnaeus).

Several were collected at Marianao.

HÆMULIDÆ.

Bathystoma rimator (Jordan & Swain).

Many from Marianao.

GERRIDÆ.

Ulæma lefroyi (Goode).

Two specimens from Marianao.

Eucinostomus pseudogula Poey.

Six specimens from Marianao.

Eucinostomus meeki Eigenmann.

Two specimens from Marianao.

SCIÆNIDÆ.

Bairdiella ronohus (Cuvier & Valenciennes).

One large and three small specimens from Marianao.

POMACENTRIDÆ.

Abudefduf saxatilis (Linnaeus).

Eight specimens from Marianao.

Eupomacentrus leucostictus Gill.

Three small specimens from Marianao.

SCARIDÆ.

Sparisoma hoplomystax (Cope).

Several specimens from Marianao.

GOBIIDÆ.

Gobius saporator Cuvier & Valenciennes.

Two large and two small specimens from Marianao.

BLENNIIDÆ.

Labrisomus nuchipinnus (Quoy & Gaimard).

Three specimens from Marianao.

PLEURONECTIDÆ.

Platophrys lunatus (Linnaeus).

Two small fishes from Marianao.